REMARKS

This paper is being provided in response to the September 9, 2005 Office Action for the above-referenced application. In this response, Applicants have added new Claims 20-25, and amended Claims 1 and 10 in order to clarify that which Applicants consider to be their invention. Applicants respectfully submit that amendments to the claims are supported by the originally-filed application.

The rejection of Claims 1-3, 8-13, 18 and 19 under 35 U.S.C. § 102(e) as being unpatentable over U.S. Patent No. 6,532,215 to Muntz (hereinafter "Muntz") is hereby traversed and reconsideration thereof is respectively requested in view of amendments to the claims provided herein.

Independent Claim 1, as amended herein, recites a method of classifying a portion of an electrical signal propagating through a conductor, comprising: digitizing the electrical signal to provide a digitized signal; providing a plurality of stored digitized signals, wherein each stored digitized signal corresponds to a digitized electrical signal for one of a number of different possible types of faults for the conductor; comparing the digitized signal to each of the stored digitized signals to determine a score therefore, wherein the score is a value determined in accordance with a level of similarity between the digitized signal and a particular one of the stored digitized signals; if the score is less than a predetermined value for a particular one of the stored digitized signals, classifying the portion of the electrical signal as a fault corresponding to the particular one of the

stored digitized signals; and if none of the scores are less than the predetermined value, classifying the portion of the electrical signal as having no fault. Claims 2, 3, 8 and 9 depend, directly or indirectly, from Claim 1.

Independent Claim 10, as amended herein, recites a computer program product that classifies a portion of an electrical signal propagating through a conductor, comprising: executable code that digitizes the electrical signal to provide a digitized signal; executable code that compares the digitized signal to each of a plurality of stored digitized signals that corresponds to a digitized electrical signal for one of a number of different possible types of faults for the conductor to determine a score therefore, wherein the score is a value determined in accordance with a level of similarity between the digitized signal and a particular one of the stored digitized signals; executable code that classifies the portion of the electrical signal as a fault corresponding to the particular one of the stored digitized signals if the score is less than a predetermined value for a particular one of the stored digitized signals; and executable code that classifies the portion of the electrical signal as having no fault if none of the scores are less than the predetermined value.

Claims 11-13, 18 and 19 depend, directly or indirectly, from Claim 10.

Muntz discloses storing predetermined characteristic impedances and thresholds that have been empirically found to be associated with presence of respective fault conditions. Based upon comparison of the actual characteristic impedances to these

predetermined impedances and/or thresholds, the SCPU 24 may determine whether any of the conditions whose characteristic impedances and/or thresholds are stored in memory 26 are present in line 58. If so, the classification of any such detected fault conditions may be determined. (Col. 10, Lines 6-24). Muntz also discloses determining the presence of fault conditions by determining whether any actual characteristic impedances are outside of a normal threshold range. (Col. 10, Lines 23-34). Data pattern recognition and statistical analysis may be used to determine the presence and classification of fault conditions. Reflection data patterns indicative of respective fault conditions may be generated by previous empirical testing and stored in association with the respective classifications of such fault conditions. The previously stored reflection data patterns may be compared with the most recently generated average total record to determine, using conventional data pattern recognition and statistical analysis techniques, locations and classifications of any such fault conditions. (Col. 10, Line 59-Col. 11, Line 5).

Applicant's Claim 1, as amended herein, is neither disclosed nor suggested by Muntz in that Muntz neither discloses nor suggests at least the features of ***a method of classifying a portion of an electrical signal propagating through a conductor, comprising: ... comparing the digitized signal to each of the stored digitized signals to determine a score therefore, wherein the score is a value determined in accordance with a level of similarity between the digitized signal and a particular one of the stored digitized signals; if the score is less than a predetermined value for a particular one of the stored digitized signals, classifying the portion of the electrical signal as a fault***

corresponding to the particular one of the stored digitized signals; and if none of the scores are less than the predetermined value, classifying the portion of the electrical signal as having no fault, as set forth in Claim 1. Muntz's teachings of a threshold and threshold range neither disclose nor suggest use of a score determined in accordance with a level of similarity between the digitized signal and a particular one of the stored digitized signals. Muntz's general disclosure that pattern recognition and statistical analysis techniques may be used do not disclose or suggest the foregoing score or any use thereof, as recited in Applicant's amended independent Claim 1. Accordingly, Muntz neither teaches, discloses nor suggests at least the forgoing recited features of amended Claim 1.

For reasons similar to those set forth regarding Claim 1, Applicant's amended Claim 10 is neither disclosed nor suggested by Muntz in that Muntz neither discloses nor suggests at least the features of ***a computer program product that classifies a portion of an electrical signal propagating through a conductor, comprising:.. executable code that compares the digitized signal to each of a plurality of stored digitized signals that corresponds to a digitized electrical signal for one of a number of different possible types of faults for the conductor to determine a score therefore, wherein the score is a value determined in accordance with a level of similarity between the digitized signal and a particular one of the stored digitized signals; executable code that classifies the portion of the electrical signal as a fault corresponding to the particular one of the stored digitized signals if the score is less than a predetermined value for a particular one of the stored digitized signals; and executable code that classifies the portion of the***

electrical signal as having no fault if none of the scores are less than the predetermined value, as set forth in Claim 10.

Although dependent Claims 2-3, 8, 9, 11-13, 18 and 19 are also neither disclosed nor suggested by Muntz for at least the reasons set forth above regarding independent Claims 1 and 10, Applicant respectfully submits that claims that depend from independent Claims 1 and 10 further recite additional features which are also neither disclosed nor suggested by Muntz.

Applicant's dependent Claim 8 recites in part ***wherein determining a score for a particular one of the stored digitized signals includes determining differences between the digitized signal and the particular one of the stored digitized signals at each point and summing the squares thereof.*** As support for disclosing this feature, pages 2 and 3 of the Office Action rely upon col. 10 line 59-col. 11, line 5 of Muntz. As discussed above, this cite of Muntz provides only general disclosure that conventional data pattern recognition and statistical analysis techniques may be used in classification of fault conditions. Applicant respectfully submits that Muntz makes no disclosure or suggestion of the specific score determination feature as set forth in Claim 8. Applicant's dependent Claim 18 recites features similar to those of Claim 8, and is also neither disclosed nor suggested by Muntz for similar reasons.

Applicants dependent Claim 9 recites in part ***adjusting the score based on one of: the variance of the particular one of the stored digitized signals and the covariance of***

the particular one of the stored digitized signals. As support for disclosing this feature, pages 2 and 3 of the Office Action also rely upon col. 10 line 59-col. 11, line 5 of Muntz. Muntz is silent regarding making any score adjustment. Applicant respectfully submits that Muntz makes no disclosure or suggestion of the specific score determination feature as set forth in Claim 9. Applicant's dependent Claim 19 recites features similar to those of Claim 9, and is also neither disclosed nor suggested by Muntz for these reasons.

In view of the foregoing, Applicant respectfully requests that the rejection be reconsidered and withdrawn.

The rejection of Claims 4-7 and 14-17 under 35 U.S.C. § 103(a) as being unpatentable over Muntz in view of U.S. Patent No. 5,502,392 to Arjavalingam et al. (hereinafter "Arjavalingam") is hereby traversed and reconsideration thereof is respectively requested in view of amendments to the claims provided herein.

Claims 4-7 and 14-17 depend from Claims 1 and 10, respectively, which are discussed above. For reasons set forth above, Claims 1 and 10, and claims that depend therefrom, are neither disclosed nor suggested by Muntz. For reasons set forth below, Applicant respectfully submits that combining Muntz with Arjavalingam also neither discloses nor suggests Claims 1 and 10, and claims that depend therefrom.

Muntz is discussed above. The Office Action on page 3 cites Arjavalingam as support for disclosing compensating a signal to remove unwanted reflective components.

Applicant's Claim 1, as amended herein, is neither disclosed nor suggested by the references, taken separately or in combination, in that the references neither disclose nor suggest at least the features of ***a method of classifying a portion of an electrical signal propagating through a conductor, comprising: ... comparing the digitized signal to each of the stored digitized signals to determine a score therefore, wherein the score is a value determined in accordance with a level of similarity between the digitized signal and a particular one of the stored digitized signals; if the score is less than a predetermined value for a particular one of the stored digitized signals, classifying the portion of the electrical signal as a fault corresponding to the particular one of the stored digitized signals; and if none of the scores are less than the predetermined value, classifying the portion of the electrical signal as having no fault***, as set forth in Claim 1. For reasons set forth above, Muntz neither discloses nor suggests the foregoing features of Claim 1. Arjavalingam also appears silent regarding any disclosure or suggestion of the foregoing features of Claim 1. Thus, combining Muntz with Arjavalingam does not overcome the deficiencies of Muntz with respect to Claim 1. Thus, the references do not teach, disclose or suggest the foregoing recited features of Claim 1.

For reasons similar to those set forth regarding Claim 1, Applicant's amended Claim 10 is also neither disclosed nor suggested by the references, taken separately or in combination, in that the references neither disclose nor suggest at least the features of ***a computer program product that classifies a portion of an electrical signal propagating through a conductor, comprising:.. executable code that compares the digitized signal***

to each of a plurality of stored digitized signals that corresponds to a digitized electrical signal for one of a number of different possible types of faults for the conductor to determine a score therefore, wherein the score is a value determined in accordance with a level of similarity between the digitized signal and a particular one of the stored digitized signal; executable code that classifies the portion of the electrical signal as a fault corresponding to the particular one of the stored digitized signals if the score is less than a predetermined value for a particular one of the stored digitized signals; and executable code that classifies the portion of the electrical signal as having no fault if none of the scores are less than the predetermined value, as set forth in Claim 10.

Although dependent Claims 4-7 and 14-17 are also neither disclosed nor suggested by the references for at least the reasons set forth above regarding independent Claims 1 and 10, Applicant respectfully submits that claims that depend from independent Claims 1 and 10 further recite additional features which are also neither disclosed nor suggested by the references.

Applicant's dependent Claim 5 recites in part ***performing attenuation compensation on the signal,*** and Applicant's dependent Claim 6 recites in part ***wherein said attenuation compensation is a function of frequency and an amount of time the signal has traveled in the conductor.*** As support for disclosing the foregoing features of Claims 5 and 6, page 3 of the Office Action cites to col. 3, line 58-col. 4, line 29, and col. 8, lines 30-40 of Arjavalingam. Col. 3, line 58-col. 4, line 29 appears to be the relevant portion which discloses generally how to model attenuation as a function of frequency.

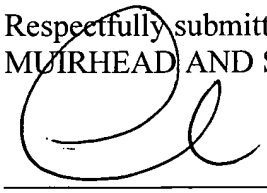
However, there appears to be no disclosure or suggestion in Arjavalingam about how to compensate for attenuation. Furthermore, there is no disclosure or suggestion of any attenuation compensation being a function of frequency and an amount of signal travel time. Based on the foregoing, Applicant respectfully submits that Arjavalingam neither discloses nor suggest the additional features recited in dependent Claims 5 and 6, and similar features recited in dependent Claims 15 and 16.

In view of the foregoing, Applicant respectfully requests that the rejection be reconsidered and withdrawn.

Applicant respectfully submits that newly added Claims 20-25 are also neither disclosed nor suggested by the cited art.

Based on the above, Applicants respectfully request that the Examiner reconsider and withdraw all outstanding rejections and objections. Favorable consideration and allowance are earnestly solicited. Should there be any questions after reviewing this paper, the Examiner is invited to contact the undersigned at 508-898-8604.

Respectfully submitted,
MUIRHEAD AND SATURNELLI, LLC



Anne E. Saturnelli
Reg. No. 41,290

Muirhead and Saturnelli, LLC
200 Friberg Parkway, Suite 1001
Westborough, MA 01581
Tel: (508) 898-8601
Fax: (508) 898-8602

Date: November 9, 2005